

Remarks on Factors at Work in Life

*A Valedictory Address to Students Graduating in
Medicine and Surgery in the University
of Glasgow, 13th July, 1909*

By

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Regius Professor of Anatomy



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GRADUATES in Medicine, on whose heads this morning the cap has been ceremoniously laid, announcing to the world that not only are you now prepared to enter on the duties and responsibilities of medical practitioners, but that you do so with the privileges and imprimatur conferred by the University of Glasgow, I am asked to give you the customary welcome appropriate to the happy occasion; and this I do with all my heart, wishing every one of you long life and a career happy to yourselves and useful to your fellow-men, whether it be brilliant or otherwise. You cannot, perhaps, all be brilliant, but you can all be good; and that is what you must carefully see to, for the way is narrow, and every false step is dogged with serious consequences. Bear with me for a short time while I try to impress on you the gravity of the situation.

This I may the better do when I recollect that this is a day important not to you only, but to me as well,

and that it was because it was thought that some valedictory words from an outgoing professor might be appropriately spoken on such an occasion that the duty was imposed on me of giving the address to-day. To me this day marks an important epoch of life. Time rolls on in even course, but the accumulations of causes make themselves known more forcibly to our minds at certain critical periods marked by sudden change. You will find on consideration, as others have found, that an effect is nothing but the summing up of its causes, and that thus the mystery which troubled Hume is to be solved. Not sequence but identity gives the clue to the connection between cause and effect. Here are you and I, with all our faults and shortcomings, as well as with whatever good there may be in us, the situation resulting as the obvious consequence of what we have done with opportunities which are past. It remains to us now, so far as may be permitted, to modify and control the future.

The position which each of us occupies is the result, in great part, of the circumstances in which we have been placed, the limits which these impose on our field of action. But our own wills come into continual operation to complete the chain of causes on which our surroundings act. Our wills are themselves the mathematical result of everything, external and internal, which goes to influence them. The external and internal factors work together to produce the net result.

Even the will of God is no unregulated thing, but is ruled by the infinitude of His Nature, the infinite

knowledge and power belonging to His Nature, so that it is impossible for Him to err, impossible for Him to be ought but good.

Error has always its source in finitude. Defect of knowledge produces error as to fact, scientific error and error of action. Thus, for example, if men knew more about the laws of health they would have less need of professional aid ; and when you yourselves come to know more than it is possible for you as yet to know, you will make fewer and fewer of those mistakes which are inevitable in the practice of even the best physicians and surgeons.

But the errors of mere ignorance are not the worst kind of error. In the affairs of every-day life, in your professional work, and in all the rude and varied contacts with the world, you will find that it is not so much the ignorance as the weakness of human nature that lends itself to terrible results. It is in the fields of inclination and resolution that this weakness is exhibited. It is a weakness arising from the peculiarities of the situation.

In the first place, note that the infant entering the world is in the centre of its own little universe, bounded by a very limited horizon ; and it is only as life proceeds that we learn how very small and unimportant each one of us is, compared with our surroundings ; while the rebuffs we meet with, belonging to the very struggle for existence, teach us self-assertion, and to distribute our smiles with a complacent sense of magnanimity in response to kindnesses received. But it is exceedingly hard to learn that discipline is good

when it is we who are subjected to it. We appreciate with ease the pleasures of sense and of the present, while the objects of higher aspiration and of more permanent satisfaction are more difficult to attain. Here there is, indeed, a source of weakness born of the very nature, the limitations of man. But it is a weakness to be grappled with, aye, and in the end to be conquered. Talk of the struggle of existence; the struggle for the highest mode of existence is the greatest struggle of all. Self-abnegation for the sake of love: Is not this the highest evolution of all? And shall it fail? Must not that "Strong Son of God, immortal love" be the animator, in all his work, of the noblest type of the physician?

The physician's and the surgeon's art is, indeed, a noble profession, but only when ennobled by nobility of purpose. Nobility of purpose is the most effective stimulant to study as well as to the performance of duty at the bedside, and it ennobles the whole acquisition of knowledge of every description. Even vivisection, that bugbear of unbalanced minds and of many who love to be thought kind-hearted and to think themselves so, vivisection is made noble by the enormous amount of suffering which it prevents and which could only be prevented by the knowledge so gained and beyond our reach by any other means.

Coleridge wrote with the scientific accuracy of a man who was philosopher as well as poet, when he penned the lines

"He prayeth well who loveth well
Both man and bird and beast,"

And I have noticed that my friends who are obliged to resort to vivisection have a most praiseworthy fondness, not only for man, but also for bird and beast. They love not bird and beast less, but man more than their detractors practically do. Vivisection is a work to be pursued in the teeth of inclination, for attainment of purposes of the highest order. The control of inclination and the subjection of it to preference of a higher end is not only necessary for such repulsive work but is essential for the attainment of excellence of any description. No more obviously pleasurable occupation could be imagined than that of the artist, and yet the artist who allows himself to be the slave of his humours and his moods will never achieve an enviable success. In the case of the medical profession, how much more obvious it is that natural inclinations should be under complete control. No weakness is allowable in practice ; its effects may amount to a crime at the expense of the patient. Not only have you had already to do many things with equanimity, which are repulsive to natural feelings, but, while it will be your duty to cultivate all kindness toward the sufferers who may come under your care and toward their friends, you will always have to be on your guard to repress the desire to please, and to be firm in decisions which may appear to them even hard and cruel.

This leads me, in considering the sources of error, to remark further that error of all sorts may arise where there is neither ignorance nor unworthy inclination, simply from want of strength of purpose. Here an element of uncontrollable circumstance again comes

in. All men are not capable of exhibiting an equal force of character. Resolution is a quality which, like every other feature, is largely dependent on heredity, and heredity is not of our own making. It is an 'unearned increment,' though I am almost afraid to say so, lest a tax should be levied on it. It ought to be an easy tax to levy, there are so many people who would be glad to pay something if they could get their neighbours to value their genius at their own estimate. But let that pass. My point is that resolution is largely a gift of heredity. All are not born brave. There was only one Lord Nelson. The stuff of which that wonderful hero was made was ridiculously absent from the character of James VI. So also with strength of purpose. As noble a couplet as Burns ever wrote runs :

"Come firm resolve, take thou the van,
Thou stalk of carl-hemp in Man."

But strength of purpose was not the strong point in Burns' character. He lamented his own weakness bitterly ; it is for us to remember the lines never to be forgotten :

"What's done we partly may compute,
But know not what's resisted."

It is for us to emulate the greatness of great men, not to copy their weaknesses. We all are weak. We must cultivate the kindness and the spirit of brotherhood which Burns teaches, and, refraining from harsh judgment of our fellow-men, learn to bear one another's burdens and so fulfil the law of One who

vanquished weakness even in agony, and stands out as our example for all time.

Our power over our wills is limited, and there is truth in the remark of Spinoza that we say that our will is free when we fail to discern the factors which are acting on it. But, for all that, we have some such power; and, like every other faculty, this power is increased by exercise. Reverently let it be spoken—ye have power even with the eternal and unchangeable Ruler of the Universe. There is philosophy as well as religion in the dictum that “the effectual earnest prayer of a righteous man availeth much.” Religion were a poor thing were it not so. Everything which takes place is the result of the inter-action of forces, taking the word force in a broad and general sense, not in the mere technical sense in which it is used by the physicist.

Look abroad at the whole Universe, and three elements present themselves for consideration, namely, mind and matter and organic life. It is usual to say that there are only two, namely, mind and matter. But that is a mistake, and, as many among you know, I have never hesitated so to teach. You are all of you, more or less, students of biology, and have a certain familiarity with organic life. That term is applied, as you are well aware, to phenomena of life in which there is no consciousness involved. It includes the whole order of development and reproduction in complex individuals and in the living corpuscles of which they are built. The property of organic life used to be spoken of as vital force; but as science

advanced, the operation of chemical and physical laws within living bodies, in the formation and government of the substances composing them, came to be better understood, till at last the greater number of scientists, oblivious of the heredity of structural formations and transitions of form, rushed to the conclusion that all the phenomena of life must admit of chemical and physical explanation, and denounced belief in vital force, wielding against it the unphilosophical weapon of satirical contempt.

But what revenges are brought round by time! While Schwann, the founder of the cellular theory of the tissues, and many anatomists at a later date, continued to teach that nucleated cells originated and grew by such physical agencies as precipitation and osmosis, the advance of microscopy has now for years back placed on a firmly established basis the fact that nucleated cells are living bodies deriving their existence and producing offspring by genetic means in the same way as the organisms which they build up. Yet, let me add, there have been few save the great Virchow, up till now, who have done any justice to our countryman, Goodsir, the first clearly to enunciate the doctrine, thus making the chain of heredity complete, and furnishing the only possible scientific basis for the conception of evolution.

Heredity is a fact, not a theory. And it is truly difficult to see what resemblance it has to the operations of inorganic matter. It is not admitted now, but the time cannot be far off when it will be universally admitted that this Heredity, the most striking feature of

organic life, is as distinct an element of the Universe knowable by man as either matter or consciousness. No doubt the whole Universe is derived from eternal spirit, but there is no consciousness separately located in either matter or organic life.

I mention these things because your business in your profession is concerned with life, and you will be expected to speak with a certain amount of knowledge on topics relating to life; and because University Graduates ought to be something more than mere practitioners, namely, intelligent and diligent students all the days of their lives. Nor do I deny that there is present to my mind, on this the last occasion on which I shall have an opportunity of addressing my old students ere putting off my harness, the desire to impress on you that the formative principle within our bodies is an instance of what I have spoken of throughout these remarks, a definite factor acting on and struggling, when necessary, against external circumstances. I have, for many years, devoted much attention to the subject of monstrosities, and in that department of research given, I hope, some assistance to explode the old notion of the existence of *lusus naturae* and to prove that in most instances the impulse to completion of a predetermined complex structure remains unchanged in its action even when thwarted by the opposition of unusual surroundings. The notion of *lusus naturae* is indeed nonsense. But the study of monstrosities affords evidence of the operation of the formative impulse as a *vis medicatrix naturae*, a force believed in by the old physicians, in defence

of which I well remember how earnestly the great but too little remembered Alison used to speak. To a Glasgow audience he may be best known as the elder brother of Sir Archibald Alison, long Sheriff of Lanarkshire ; but he was one of the most philosophical and philanthropic of physicians.

Farewell, my old students. There is a *vis medicatrix* which will yet bring the long and laborious evolution of Man's career on this planet to a glorious climax. Be this *vis medicatrix* powerful in each of you to guide you to the haven of perfection and great calm.

